

glucose-6-phosphatase or putative links between serotonin and the immune system. Both topics are covered and possible future directions discussed. Finally two chapters are devoted to an update on two regulatory enzymes from *Escherichia*

coli, glutamine synthetase and* glutamine-dependent carbamyl phosphate synthetase.

T.J. Mantle

Proteases of Retroviruses; Edited by V. Kostka; Walter de Gruyter; Berlin, 1989; xii + 206 pages; DM 198.00

This volume collects the texts of 18 lectures that were given at the special Colloquium on Retroviral Proteinases held during the 14th International Congress of Biochemistry in Prague in the summer of 1988.

With the benefit of hindsight some 16 months later, one can only marvel at the perspicacity of the colloquium organisers in having the foresight six of eight months earlier to conceive and plan an event that brought together essentially everyone who was known to be active in this rapidly developing subject area. The contents, the ideas, the predictions of the lectures that were received so

enthusiastically at the time, somehow, sadly, seem a little jaded in print now, such is the pace of AIDS-related research. Nevertheless, this small volume collates the research that was current then, of the acknowledged leaders in the field and will be valuable as a source of information for some time to come. It will undoubtedly stand alongside earlier companion volumes, on the protein family to which the Retroviral Proteinases belong (i.e. Aspartic Proteinases), and on Cysteine Proteinases and Their Inhibitors.

John Kay

Handbook of Enzyme Inhibitors; by Helmward Zollner; VCH Verlagsgesellschaft; Weinheim, 1989; xi + 440 pages; DM 194.00/£65.00

This well-presented handbook attempts to tabulate the known inhibitors for about one thousand different enzymes. Two lists are provided: enzymes listed alphabetically with their respective inhibitors (K_i values and type of inhibition are given when available), and inhibitors listed alphabetically with the names of the enzymes that they affect. Literature references are provided.

I checked the first list by looking up five enzymes I am particularly interested in: superoxide dismutase (SOD), elastase, catalase, myeloperoxidase and cyclooxygenase.

Information on SOD, catalase and cyclooxygenase was good, but the other two enzymes were not listed.

I then selected five inhibitors at random: aluminium, fluoride, eglin C, azide and dicoumarol. All except eglin C were listed, and again accurate information was presented.

Overall, I feel that this book should be useful: indeed, we have already used it several times in the laboratory. However, it is not comprehensive and may well become out-of-date quickly.

Barry Halliwell

Photosynthesis (Plant Biology, Vol. 8); Edited by W.R. Briggs; Alan R. Liss, New York, 1989; xxii + 524 pages; \$98.00

This is a unique book since its thirty articles span a wider spectrum of subjects than any other book I know of which focuses on photosynthesis. On the one hand there are chapters on photophysical aspects of primary charge separation in reaction centers by Govindjee and Wasielewski and by Parson and, on the other, chapters on global photosynthesis and ecophysiology by Mooney and Field and by Bjorkman. Perhaps, however, this is to be expected for a proceeding of a symposium organized and held at the Carnegie Institution at Stanford. This laboratory has a long tradition of tackling research in photosynthesis using the interdisciplinary approach whereby basic molecular studies have been used to interpret observations made with whole plants, often under field conditions. It was Stacy French who first established photosynthesis as a major research area at Stanford and it was in honor of his 80th birthday that this

symposium was held. With the belief that FEBS Letters is read by biochemists rather than by whole plant physiologists and ecologists, I should take this opportunity to inform you that it was Stacy who invented the French Press which is used so widely today by all types of cell molecular biologists.

Approximately 70% of the articles are concerned with the biochemistry and molecular biological facets of photosynthesis, and indeed, there are some excellent contributions. A theme which dominates in many of these articles is the control of various processes by light, whether it be thylakoid membrane organization and composition or gene expression. In one way or another, all aspects of electron transfer and carbon fixation are dealt with, although in many cases the contributions give recent experimental data rather than overviews of particular areas. The remaining 30% of the book falls broadly into physiology and ecology. In many ways these

contributions are more complete and serve as good background reading. I particularly enjoyed the opening chapter by Osmond which he entitled 'Photosynthesis from the molecule to the biosphere: A challenge for integration'. Without any doubt, in this article he captured the spirit of the symposium and its published proceedings. He also echoed my own sentiments that when our planet is viewed from the distance of outer space, global and molecular photosynthesis merge into one. I like the theme of this book and thoroughly recommend it to all those researching in photosynthesis, no

matter what aspect. I am sure it will serve not only as an informative text but also as a catalyst for new and exciting experiments. Indeed, many of the articles throw up some thought-provoking ideas which deserve to be tested experimentally. Finally, I would like to compliment the editor and publishers on the excellent presentation of the book and for insisting that the authors give titles in the reference lists.

J. Barber

The Biosynthesis of Secondary Metabolites, second edn; by R.B. Herbert; Chapman and Hall; London, 1989; xiv + 231 pages; £30.00 (hardback), £14.95 (paperback)

This new edition provides an updated account of the fundamentals of secondary metabolism.

The author has, to his credit, avoided the temptation to make the second edition very much larger than the first. Inevitably he has omitted material that others might have included, but he recognises this and provides a very adequate list of references at the end of each chapter.

The reader is first introduced to the basic concepts and the experimental methods used to study biosynthesis. Subsequent chapters deal with the formation of polyketides, terpenes and steroids, aromatic compounds via the shikimic acid pathway

and six major groups of alkaloids. The final chapter is devoted to a somewhat heterogeneous collection of nitrogen-containing compounds synthesised by microorganisms. Many of the compounds included are antibiotics of pharmaceutical importance.

The author gives a clear account of the principal pathways of secondary metabolism and a balanced introduction to this area of biochemistry. It is a pleasure to welcome this edition.

E. Arthur Bell

Vitamins; by Wilhelm Friedrich; Walter de Gruyter; Berlin, 1988; 1058 pages; DM 380.00

Most compendia of vitamins are multi-author works, and the author is to be congratulated for undertaking the task of producing so monumental a work single-handed. Each chapter has an extensive bibliography, and somewhat unusually there is an appendix of papers published during 1984–1986, after the text had been written. I am not sure that this is any more useful to the reader than a simple search through Index Medicus, but it does tell us that the text is only up to date to 1983/4.

The book is conventionally arranged, with discussion of the history, chemistry, analysis, biosynthesis, biochemical role, occurrence in foods, physiology, requirements, deficiency diseases, pharmacology and toxicity of each vitamin. There are numerous tables, some containing very useful information, while others are less useful: for example the vitamin content of somewhat eclectic lists of foods – is the relatively low carotene content of bananas and strawberries, or the high carotene content of parsley, of any nutritional significance? While it might be useful to list especially rich sources of vitamins in a book of this kind, any reader who had access to this book would presumably also have access to more complete tables of food composition. The book is a mine of information, much usefully collected together, such as plasma concentrations of vitamin D and metabolites in man and various animals, and some interesting, if not especially useful, such as the relative time required to determine vitamin D by various methods (most of which are

now of historical, rather than practical interest). Other tables, such as the physico-chemical properties of vitamin A and carotenes, and the molecular weights and empirical formulae of the vitamins are information which I would probably look for first in the 'Rubber Book', Dawson's 'Data Book' or the Merck Index, rather than here.

The diagrams in general are reasonably clear, although some are difficult to interpret (I spent several minutes trying to disentangle the mechanism of oxidative decarboxylation of oxo-acids, and am still unsure whether I have understood the diagram correctly or not). Five pages are devoted to colour plates showing crystals of the vitamins, their molecular formulae and space-filling models. These are copies of Roche posters, and I find it difficult to see what useful purpose they serve in such a book, although they are rather pretty.

This book is not a critical review of the state of our knowledge of vitamins, and does not address many of the outstanding problems. What we have here is the distillation of the author's obviously vast knowledge of the field, but without the benefit of his insight to interpret the information. This is not a text-book to be read – despite its length; in many places the text is telegraphic to the point of obscurity. It would not be especially useful to students, although as a reasonably up-to-date compilation of data, it has an obvious place in the reference library.

David A. Bender